COMMONWEALTH OF VIRGINIA

Information Technology Resource Management Standard

PROJECT MANAGEMENT STANDARD

Virginia Information Technologies Agency

ITRM PUBLICATION VERSION CONTROL

ITRM Publication Version Control: It is the user's responsibility to ensure they have the latest version of this ITRM publication. Questions should be directed to the Associate Director for Policy, Practice and Architecture (PPA) at VITA's Strategic Management Services (SMS). SMS will issue a Change Notice Alert, post it on the VITA Web site, and provide an email announcement to the Agency Information Technology Resources (AITRs) at all state agencies and institutions as well as other parties PPA considers to be interested in the change.

This chart contains a history of this ITRM publication's revisions.

Version	Date	Purpose of Revision
Original	10/28/2004	Base Document (COV ITRM Standard GOV2004 - 02.3.2)
Revision 1	04/04/2006	Updates requirements concerning project oversight committees, project cost benefit analysis, and Independent Verification and Validation (IV&V).

Preface

Publication Designation

Commonwealth of Virginia (COV) Information Technology Resource Management (ITRM) Standard CPM 112-01

Subject

Project Management Standard

Effective Date

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Supersedes

COV ITRM Standard GOV2004 - 02.3.2

Scheduled VITA Review

One (1) year from the effective date, then every two years thereafter.

Authority

Code of Virginia, §2.2-2007
(Powers and duties of the CIO)

Code of Virginia, §2.2-2010
(Powers and duties of the Virginia Information Technologies Agency; "VITA")

Code of Virginia, §2.2-2017
(Powers and duties of the VITA Division of Project Management)

Code of Virginia, §2.2-2014
(*Submission of information technology plans by state agencies and public institutions of higher education; designation of technology resource*.)

Code of Virginia, §2.2-2015
(*Authority of CIO to modify or suspend major information technology projects; project termination)*

Code of Virginia, §2.2-2018; §2.2-2019; §2.2-2020; §2.2-2021
(Project planning approval; Project development approval; Procurement approval for major information technology projects; Project oversight)

Code of Virginia, §2.2-2457; §2.2-2458
(Powers and duties of the Information Technology Investment Board; the "Board")

Code of Virginia § 2.2-2651
(Duties of the Council on Technology Services)

Scope

This policy is applicable to all Executive Branch state agencies and institutions of higher education (hereinafter collectively referred to as "agencies") that are responsible for the management, development, purchase and use of information technology investments in the Commonwealth of Virginia. This standard does not apply to research projects, research initiatives or instructional programs at public institutions of higher education. Local government entities are encouraged to consider the implications of this standard for their work.

Purpose

To establish standards for the management of information technology projects with total cost greater than or equal to $100,000 in the Commonwealth of Virginia (COV).

General Responsibilities (Italics indicate Code of Virginia requirements)

The Information Technology Investment Board (the "Board")

The Information Technology Investment Board is assigned the following general technology management responsibilities*:*

- *Approve or disapprove the development of all major information technology projects as defined in § 2.2-2006. The Board may terminate any major information technology project recommended for termination by the Chief Information Officer pursuant to § 2.2-2015;*
- *Approve strategies, standards, and priorities recommended by the Chief Information Officer for the use of information technology for state agencies in the executive branch of state government;*
- *Approve the four-year plan for information technology projects;*
- *Approve criteria for the review and approval of the planning, scheduling and tracking of major information technology projects as defined in § 2.2-2006;*

Chief Information Officer (CIO)

The Chief Information Officer is assigned the following general technology management responsibilities:

- *Monitor trends and advances in information technology; develop a comprehensive, statewide,*

four-year strategic plan for information technology to include specific projects that implement the plan; and plan for the acquisition, management, and use of information technology by state agencies. The statewide plan shall be updated annually and submitted to the Board for approval. In developing and updating the plan, the CIO shall consider the advice and recommendations of the Council on Technology Services created pursuant to § 2.2-2651.

- *Direct the formulation and promulgation of policies, guidelines, standards, and specifications for the purchase, development, and maintenance of information technology for state agencies, including, but not limited to, those (i) required to support state and local government exchange, acquisition, storage, use, sharing, and distribution of geographic or base map data and related technologies, (ii) concerned with the development of electronic transactions including the use of electronic signatures as provided in § 59.1-496, and (iii) necessary to support a unified approach to information technology across the totality of state government, thereby assuring that the citizens and businesses of the Commonwealth receive the greatest possible security, value, and convenience from investments made in technology.*

- *Direct the development of policies and procedures, in consultation with the Department of Planning and Budget, that are integrated into the Commonwealth's strategic planning and performance budgeting processes, and that state agencies and public institutions of higher education shall follow in developing information technology plans and technology-related budget requests. Such policies and procedures shall require consideration of the contribution of current and proposed technology expenditures to the support of agency and institution priority functional activities, as well as current and future operating expenses, and shall be utilized by all state agencies and public institutions of higher education in preparing budget requests.*

- *Direct the development of policies and procedures for the effective management of information technology investments throughout their entire life-cycles, including, but not limited to, project definition, procurement, development, implementation, operation, performance evaluation, and enhancement or retirement. Such policies and procedures shall include, at a minimum, the periodic review by the CIO of agency and public institution of higher education information technology projects estimated to cost $1 million or more or deemed to be mission-critical or of statewide application by the CIO.*

- *Direct the development of policies and procedures that require VITA to review information technology projects proposed by state agencies and institutions exceeding $100,000, and recommend whether such projects be approved or disapproved. The CIO shall disapprove projects between $100,000 and $1 million that do not conform to the statewide information plan or to the individual plans of state agencies or institutions of higher education.*

- Approve Contracts and Statements of Work for Independent Verification and Validation (IV&V) of major IT projects.

Virginia Information Technologies Agency (VITA)

The Virginia Information Technologies Agency is assigned the following general technology management responsibilities:

- *Prescribe regulations necessary or incidental to the performance of duties or execution of powers conferred under the Code of Virginia, §2.2-2010.*

- *Develop and adopt policies, standards, and guidelines for managing information technology by state agencies and institutions.*

- *Develop and adopt policies, standards, and guidelines for the procurement of information technology and telecommunications goods and services of every description for state agencies.*

The Project Management Division (PMD) of VITA

The Division of Project Management is assigned the following general technology management responsibilities:

- *Implement the approval process for information technology projects developed in accordance with § 2.2-2008;*

- *Assist the CIO in the development and implementation of a project management methodology to be used in the development of and implementation of information technology projects in accordance with this article;*

- *Provide ongoing assistance and support to state agencies and public institutions of higher education in the development of information technology projects;*

- *Assign project management specialists to review and recommend information technology proposals based on criteria developed by the Division based on the (i) degree to which the project is consistent with the Commonwealth's overall strategic plan; (ii) technical feasibility of the project; (iii) benefits to*

the Commonwealth of the project, including customer service improvements; (iv) risks associated with the project; (v) continued funding requirements; and (vi) past performance by the agency on other projects; and

- *Provide oversight for state agency information technology projects.*

Executive Branch (Cabinet) Secretaries

Executive Branch (Cabinet) Secretaries are assigned the following general technology management responsibilities:

- Make appropriate recommendations to the CIO regarding COV enterprise technology programs and projects, throughout the program or project life-cycle, which includes program or project initiation, planning, execution, closeout, and operations and support.

- Review agency major IT projects and make appropriate recommendations to the CIO, throughout the project lifecycle, which includes the project initiation, planning, execution, closeout, and operations and support phases.

Executive Branch State Agencies

State Agencies are assigned the following general technology management responsibilities:

- *The head of each state agency shall designate an existing employee to be the agency's information technology resource who shall be responsible for compliance with the procedures, policies, and guidelines established by the CIO.*

- *Prior to proceeding with any major information technology project, an agency shall submit to the Division* (PMD) *a project proposal, outlining the business need for the project, the proposed technology solution, if known, and an explanation of how the project would support the agency's business objectives and the Commonwealth's information technology plan. The project management specialist may require the submission of additional information if needed to adequately review any such proposal.*

- *Upon approval of the CIO of the project plan, an agency shall submit to the Division* (PMD) *a project development proposal containing (i) a detailed business case including a cost-benefit analysis; (ii) a business process analysis, if applicable; (iii) system requirements, if known; (iv) a proposed development plan and project management structure; and (v) a proposed resource or funding plan. The project management specialist may require the submission of additional information necessary to meet the criteria developed by the Division* (PMD).

- *Upon approval of the Board of the project development proposal involving a major information technology project that requires the procurement of goods or services, the agency shall submit a copy of any Invitation for Bid (IFB) or Request for Proposal (RFP) to the Division* (PMD). *The project management specialist shall review the IFB or RFP and recommend its approval or rejection to the CIO. The CIO shall have the final authority to approve the IFB or RFP prior to its release and shall approve the proposed contract for the award of the project.*

- *Whenever an agency has received approval from the Board to proceed with the development and acquisition of a major information technology project, the CIO shall establish an internal agency oversight committee. The internal agency oversight committee shall provide ongoing oversight for the project and have the authority to approve or reject any changes in the project's scope, schedule, or budget. The CIO shall ensure that the project has in place adequate project management and oversight structures for addressing major issues that could affect the project's scope, schedule, or budget and shall address issues that cannot be resolved by the internal agency oversight committee.*

- *Whenever a statewide or multiagency project has received approval from the Board, the primary project oversight shall be conducted by a committee composed of representatives from agencies impacted by the project, which shall be established by the CIO.*

- Comply with the policies and standards, and consider guidelines for the management of information technology resources in the Commonwealth.

- Plan and manage agency IT projects, throughout the project lifecycle, which includes the project initiation, planning, execution, closeout, and operations and support phases.

- Propose the initiation of major IT projects to the CIO. Manage approved major IT projects, throughout the project lifecycle, which includes project initiation, planning, execution, closeout, and operations and support phases.

- *On an annual basis, each agency must report to the CIO and the director of Planning and Budget performance measurement information for technology projects. The information shall include, but not be limited to, the degree to which projects were completed on time and within budget. The*

performance reporting will be based on guidance issued by the CIO and the Department of Planning and Budget.

Council on Technology Services (COTS)

The Council on Technology Services is assigned the following general technology management responsibility:

- *The purpose of the Council shall be to advise Chief Information Officer on the services provided by the Virginia Information Technologies Agency and the development and use of applications in state agencies and public institutions of higher education.*

Related COV ITRM Policies, Standards, and Guidelines

- IT Strategic Planning & Portfolio Management Standard (To be published)
- Project Manager Selection and Training Standard (COV ITRM Standard 2003-02.3)
- Technology Management Glossary (COV ITRM Standard GOV2003-02.1)
- Project Management Guideline (ITRM Guideline CPM 110-01)

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Section 1. Introduction

1.1 Purpose of the Commonwealth Project Management (CPM) Standard

The Commonwealth of Virginia Information Technology Resource Management Project Management Standard (COV ITRM Standard CPM 112-01) establishes the required agency processes and documentation for all information technology (IT) projects in the Commonwealth of Virginia having a total cost greater than or equal to $100,000. The expected outcomes or results of implementing this standard are increased IT project success through sound investment decisions, management commitment and oversight, implementation of a best practice based project management methodology, and the establishment of defined processes that measure and evaluate project progress throughout the project lifecycle. Implementation of this standard will ultimately achieve a higher return on the Commonwealth's IT investments by promoting the use of sound management practices appropriately scaled to fit each project. This standard uses complexity to determine the degree of management and documentation required in detailed planning, execution, and closeout. The goal is to apply just the right amount of management control and documentation needed for a specific project to succeed. In summary, using complexity to determine what documentation and controls to apply, the Commonwealth will neither over manage nor under manage a project.

1.2 Authority

Specific requirements related to the management of IT projects are specified in the *Code of Virginia* and related policies. The CPM Standard is applicable to all state agencies and institutions of higher education that are responsible for the management, development, purchase, and use of information technology investments in the Commonwealth; however, this standard does not apply to research projects, research initiatives, or instructional programs at public institutions of higher education.

Implementation of the standard is effective immediately based on the lifecycle phase of the project on November 1, 2004. All projects not approved for development by November 1, 2004 will implement all sections of the CPM Standard. Projects initiated after September 1, 2003 that have not completed project planning as of November 1, 2004 will implement Section III of the CPM Standard. Those projects that have completed project planning and are beginning, or have begun, the execution and control phase of the project lifecycle will implement Section III requirements for project execution and control, closeout, and post implementation review.

1.3 Project Management in the Commonwealth of Virginia

The methodology and governance structure for Commonwealth IT projects are derived from the *Code of Virginia.* The Commonwealth Technology Management Policy, the IT Strategic Planning and Portfolio Management Standard (to be published), the Project Manager Selection and Training Standard, and the Commonwealth Project Management Guideline directly affect project management practices and activities.

The Commonwealth Technology Management Policy (COV ITRM Policy GOV2002-02.1) establishes a comprehensive and uniform policy for the management and oversight of technology investments in the Commonwealth of Virginia. The policy defines the Commonwealth of Virginia's IT Investment Management (ITIM) approach for managing information technology investments, throughout the lifecycle of technology assets and projects. Complete implementation of the policy includes development and rollout of supporting standards, guidelines, and tools for managing information technology at agencies.

The proposed ITIM Standard will define systematic processes used by agencies to set broad direction and specific goals for managing IT investments, support delivery of IT services to customers, and manage technology investments within a technology portfolio. The CTM IT Strategic Planning process is an ITIM-based strategic planning methodology that looks at projects and assets as long-term investments and forms the foundation for selecting, controlling, and evaluating technology investments as part of a business-driven technology portfolio.

The Commonwealth Project Management Guideline (ITRM Guideline CPM 110-01) defines a methodology for the management of projects by executive branch agencies in the Commonwealth of Virginia. The guideline is aligned with the Project Management Body of Knowledge (PMBOK®) published by the Project Management Institute and industry "best practices." Information provided in the guideline serves as a common reference point and language for the discussion and implementation of project management in the Commonwealth.

The Project Manager (PM) Selection and Training Standard (COV ITRM Standard GOV2003 - 02.3) establishes the minimum qualifications and training standards for project managers of Commonwealth of Virginia IT projects. The standard has five components that accomplish this requirement. The components are:

- PM Testing and Training
- PM Qualifications
- PM Mentoring
- PM Qualification and Selection Process
- PM Qualification and Selection Process Implementation Schedule

1.4 What is a Project?

A project can be defined in terms of its distinctive characteristics. A project is a temporary endeavor undertaken (by an organization) to develop a unique product or service. Temporary means that every project has a definite beginning and a definite end. Unique means that the product or service is different in some distinguishing way from all other products or services (provided by the subject organization).

Operations and maintenance activities, supporting an existing product or service within an organization, are not projects so long as the focus of the activity is the continued use of the current product of service. Significant cost for a procurement or operational activity does not make the procurement or activity a project. For example, routine upgrades and network component replacements, conducted as a matter of course in the maintenance and operation of IT

assets, are not necessarily projects. However, an activity is a project if that activity leads to modification of an existing product or service, resulting in a new unique product or service within the operational or organizational environment. Utilization of project management principles and techniques in the management of operations and maintenance activities is encouraged.

The Project Management Standard (ITRM Standard CPM 112-01) establishes the required agency processes and documentation for the management of all IT projects in the Commonwealth of Virginia. The applicability of the standard is first determined by the classification of a project as an IT project, based on the IT definition established in the *Code of Virginia* and the Commonwealth Technology Management Glossary. The Commonwealth Technology Management Glossary is available on-line at the Virginia Information Technologies Agency (VITA) Website, http://www.vita.virginia.gov//projects/cpm/glossary.cfm.

Information Technology (IT) - The hardware, software, and related systems, operated by an organization to support the flow or processing of information in support of business activities. In the Commonwealth of Virginia, IT includes telecommunications, automated data processing, databases, the Internet, management information systems, and related information equipment, goods, and services.

Information Technology Project - A temporary endeavor undertaken to deliver a unique product or service, which incorporates the use of information technology as a critical component of the project. An IT project typically includes a significant use of telecommunications, automated data processing, databases, the Internet, management information systems, and related information equipment, goods, and services.

Certain types of endeavors are closely related to projects. These related undertakings are described below:

Program – A program is a group of projects managed in a coordinated way to obtain benefits not available from managing them individually. Many programs include elements of ongoing operations.

Procurement – The procedures for obtaining goods or services including all activities from the planning, preparation, selection, negotiation, contract formation, and processing of a requisition, through receipt and acceptance of delivery and processing of a final invoice for payment.

The Project Management Standard does not require specific processes or documentation for the management of programs or procurements; however, the project management best practices, presented in the standard, may be applied as sound business practices for the management of programs and procurements.

1.5 Commonwealth IT Project Management Lifecycle

The Commonwealth Technology Management Policy (COV ITRM Policy GOV2002-02.1) identifies six phases in the lifecycle of a technology investment. The six phases are Selection, Initiation, Planning, Execution and Control, Closeout, and Operations and Support. The selection of a technology investment is part of the agency IT strategic planning process and identifies the technology investments the agency will manage as projects. Project Management activities begin at Initiation, and proceeds through the phases of Planning, Execution and Control, and Closeout. Once a project is completed or closed out, the resulting product or service (asset) produced from the technology investment is managed as a part of normal agency "Operations and Support."

The *Code of Virginia* requires express approvals at specific points in the project lifecycle, including project planning approval and project development approval requirements. Project planning, as described in the *Code of Virginia §2.2-2018*, is equivalent to the project lifecycle Initiation phase identified in the Commonwealth Technology Management Policy and the Commonwealth Project Management Guideline. Project Development, as described in the *Code of Virginia § 2.2-2019,* continues the project lifecycle and includes the lifecycle phases of Project Planning, Execution and Control, and Closeout. Appendices C and D summarize the roles and responsibilities for governance during the lifecycles of major and non-major projects.

The CPM Standard addresses the governance and management of any IT project and is not synonymous with a specific System Development Lifecycle (SDLC). There are several SDLC models applicable to IT projects. The selection of an appropriate model is made based on the nature of the project and the environment in which the project tasks are performed. Agencies must establish specific model standards and selection criteria for determining which model is appropriate for a given project. The activities and tasks of a selected SDLC model are reflected in the project Work Breakdown Structure (WBS) and project schedule.

1.6 Project Categories

Technology projects are categorized as major or non-major. Major IT projects are defined in the *Code of Virginia* as *information technology projects that (i) are mission critical, (ii) have statewide application; or (iii) have a total estimated cost of more than $1 million (§ 2.2-2006).* Conversely non-major IT projects are those technology projects with a total estimated cost less than or equal to $1 million, that are not mission critical, and do not have statewide application.

1.7 Project Complexity Classification

Project complexity drives both the amount of oversight required and extent of project documentation necessary to adequately manage a given project. The IT Project Document Summary Table (Appendix B) maps the requirements based on level of complexity determined using the IT Project Complexity Model (Appendix A). A Complexity Model template (and instructions) is also available for download at http://www.vita.virginia.gov/projects/cpm under the templates hyperlink.

The IT Project Complexity Model (Appendix A) provides a scoring mechanism to determine the level of complexity associated with a project. The scoring elements include the level or degree of risk, the technical requirements, the number of members on the project team, total project cost, and the percent of the agency IT budget the project represents. Each question in the model has four potential responses. Each response has a numerical value. The values from the responses selected are summed, resulting in a numerical score that correspond to a level of project complexity.

High complexity projects are typically high dollar value projects, requiring extensive integration and stringent control processes. The nature of high complexity projects drives the requirement for extensive planning, documentation, and strictly enforced change and configuration management processes. The project controls, documentation, and required information identified in the IT Project Documentation Summary Table (Appendix B) are required for projects defined as High Complexity in the Commonwealth of Virginia.

Although medium complexity projects require thorough planning, typically less documentation and control processes are needed to deliver the project product or service as specified in the project scope. The project controls, documentation, and required information identified in IT Project Documentation Summary Table (Appendix B) are required for projects defined as Medium Complexity in the Commonwealth of Virginia.

Low complexity projects also require complete planning but less documentation and fewer control processes are needed to deliver the project product or service as specified in the project scope. The project controls, documentation, and required information identified in IT Project Documentation Summary Table (Appendix B) are required for projects defined as Low Complexity in the Commonwealth of Virginia.

1.8 Commonwealth IT Project Management Governance Structure

Legislation enacted in 2003 restructured information technology in the Commonwealth, ushering in comprehensive reform of state government information technology management. The General Assembly shaped a new Commonwealth Technology Management (CTM) governance structure for planning and development of IT projects and the purchasing of IT equipment and services.

Clearly defined governance roles and responsibilities facilitate successful accomplishment of project activities. Appendix E provides a graphical depiction of the governance structure.

Commonwealth Information Technology Investment Board

CTM is governed by the Information Technology Investment Board (ITIB) comprised of members appointed by the Governor and the Joint Rules Committee of the General Assembly, plus the Secretary of Technology, who serves in an ex officio role with voting privileges and the Auditor of Public Accounts, who is a non-voting member. The ITIB is charged with setting technology strategy and with reviewing and prioritizing major IT technology investments, including project development and associated procurements proposed by Commonwealth executive branch agencies and institutions of higher education. The ITIB also approves major IT

project development, associated procurements, the termination of major IT projects, and the four-year statewide plan for technology. Decisions regarding termination of major IT projects at institutions of higher education will be made in consultation with the institution board of visitors. The ITIB may authorize the CIO to approve or disapprove major IT projects and procurements within specific guidelines.

Strategic Planning and Review Committee

The ITIB established the Strategic Planning and Review Committee (SPARC) to conduct detailed reviews and analyses of proposed projects, technology management related policies and standards, and enterprise architecture. The SPARC recommends to the ITIB development approval or termination of major IT projects and the approval of policies and standards related to technology management.

Commonwealth Chief Information Officer

The Chief Information Officer (CIO) serves as the chief administrative officer of the Virginia Information Technologies Agency (VITA). Other responsibilities of the CIO include developing policies, standards and procedures for technology and project management, granting planning approval for all IT projects with a value that equals or exceeds $100,000, granting development approval for non-major IT projects, approving IT procurements exceeding $100,000, and approving Invitations for Bid (IFB), Requests for Proposals (RFP), and contracts. In addition, the CIO may be authorized to approve or disapprove major IT projects for development by the ITIB, subject to a specific resolution of the ITIB. The CIO may also direct the modification or suspension of any major IT project that has not met the performance measures agreed to by the CIO and the sponsoring agency or public institution of higher education or if such action is appropriate and consistent with the terms of any affected contracts. A decision regarding suspension of a major IT project at an institution of higher education will be made in consultation with the institution board of visitors.

Cabinet Secretaries and Agency Heads

Cabinet secretaries and agency heads may designate secretariat and agency enterprise technology programs in support of secretariat or agency initiatives, with the approval of the Commonwealth CIO. Secretariat or agency enterprise technology programs and projects will be defined, funded, developed, approved, and managed utilizing guidance established within the CTM Policy.

Proponent Secretariat Oversight Committees

Proponent Secretariat Oversight Committees established by the CIO provide oversight for major IT projects as prescribed by this standard. The Proponent Secretariat Oversight Committee represents the business or functional owners and will have the following membership at a minimum:

Proponent Secretary (Chair ex officio)
Proponent Deputy Secretary (Chair)
CIO Representative (VITA – Associate Director for Project Management)

Secretary of Finance Representative – (Department of Planning and Budget – DPB Analyst)
Proponent Agency Head or designated substitute
Others, as appointed by the Chair and CIO

The Proponent Secretariat Oversight Committee will validate proposed project business cases and make recommendations to the CIO on major IT projects proposed for development. The Committee will also review Independent Verification and Validation (IV&V) reports for major IT projects and may recommend corrective actions. The Committee will accept escalated issues from the Internal Agency Oversight Committee to consider and resolve, or forward their recommendations to the CIO for final resolution.

Internal Agency Oversight Committees

The Internal Agency Oversight Committee (IAOC) is appointed by the CIO upon recommendation of the agency. The membership is specified in the project charter. Generally, all stakeholders identified in the charter are represented on the IAOC. A project management specialist from VITA PMD will participate as a non-voting member. The IAOC will have the following membership at a minimum:

Proponent Agency Head (Chair) or designated substitute
Project Sponsor
Project Manager
Stakeholder representative(s) as appropriate for the project
VITA PMD (non-voting)

The committee provides oversight and direction to the major IT project for which they were chartered, and will attempt to resolve all project issues at their level of authority. When there are proposed project baseline changes (i.e. Scope, Cost, Schedule) that exceed 10% of the original baseline(s), or when the agency oversight committee cannot resolve issues, the committee chair will escalate the proposed baseline changes or issues for resolution to the Proponent Secretariat Oversight Committee.

Meetings by the IAOC will occur, at a minimum, on a monthly basis to effectively provide the oversight and direction necessary for major IT projects. The IAOC will have a prepared agenda that will address recent and expected changes to the standard project baselines – cost, schedule, and scope. Relevant questions from which an agenda can be derived include:

- Is the project on track to meet planned business goals and the associated measures of success?
- Are the costs within the planned budget?
- Is the project on schedule?
- Does the project remain within the approved scope?
- How is the project being managed to minimize or mitigate identified risks? The IAOC should be familiar with the project's Risk Management Plan and associated contingency plans to know how to act accordingly should critical risks become reality.

Meeting minutes are essential for the project record, and will be formally approved by the committee from the previous meeting, and taken for the current meeting.

VITA Project Management Division

The VITA Project Management Division (PMD), part of the VITA IT Investment Management Directorate, is established in the *Code of Virginia* and serves as the Commonwealth Enterprise Program Management Office (EPMO). Roles and responsibilities are established in the Commonwealth Technology Management Policy. On behalf of the Commonwealth Chief Information Officer (CIO) and the Commonwealth Information Technology Investment Board (ITIB), PMD implements an integrated approach to the management of information technology investments.

Project Sponsor

The project sponsor is the individual, usually part of the agency management team, who makes the business case for the project. This individual usually has the authority and responsibility to define project goals, secure resources, and resolve organizational and priority conflicts.

Program Manager

Where appointed, the program manager provides oversight and coordination of assigned projects; guides and supports the development and enhancement of project management capabilities within an enterprise program office or operational organization(s); ensures appropriate project management processes and procedures are in place; and enforces adherence to established standards and guidelines in the delivery of IT projects. Not all projects are part of programs, so there may be no program manager in the chain of responsibility.

Project Manager

Every Commonwealth IT project must have a designated project manager. The project manager is responsible for the management of the project from planning through closeout. The project manager for a major IT project will be appointed and qualified by the project sponsor and approved by the CIO. Project sponsors will qualify and approve project managers of non-major IT projects. The CIO will consider the non-major IT project managers qualification status as part of the criteria for non-major IT project development approval. Project managers for major IT projects are responsible for reporting project status. The project manager for a major IT project must be an employee of the Commonwealth or a consultant selected (qualified) in accordance with the Project Manager Selection and Training Standard (COV ITRM Standard GOV2003 - 02.3).

1.9 Project Selection

The Agency IT Strategic Plan (ITSP) is incorporated within the Agency Strategic Plan which is submitted to the Department of Planning and Budget (DPB). This biannual plan is developed and updated in accordance with the Agency Strategic Planning Guidance issued by DPB.

In the Agency ITSP, agencies provide basic agency profile and strategic direction information, including the agency IT vision and strategies to support agency core business activities, key activities, critical issues, and the initial definitions and descriptions of all major or non-major IT projects which equal or exceed $100,000.

1.10 Project Planning Approval

Agency projects are individually reviewed and approved for planning by the CIO before the Agency ITSP is approved. If a proposed project is not part of the Agency ITSP, the agency will submit an Agency ITSP Amendment Request using the Commonwealth Agency Technology Strategic Planning Application (CATSPA). PMD reviews the Agency ITSP amendment request and recommends approval or disapproval to the CIO. Upon final approval of the amendment, the change is posted to the Agency ITSP, and the project within the amendment is thereby granted planning approval.

Section 2. Project Initiation

2.1 Major IT Project Initiation

The following procedures apply to all major IT projects.

2.1.1 Project Development Approval

After approval of the Agency ITSP or ITSP amendment by the CIO, the agency will begin initiation of the IT project as specified in the plan or amendment. Project initiation is a business decision and business owners must take action to insure the success of the project. The business owner (project sponsor) is responsible for management of the project initiation phase of the project lifecycle. A project manager designee may be appointed to assist the project sponsor or business owner in the initiation phase of the project. The project manager is designated in the project charter; therefore, the project manager is responsible for activities that occur after a project is initiated.

The agency will conduct an analysis of project solutions and develop a proposal for the selected solution. The Commonwealth Project Management Guideline (ITRM Guideline CPM 110-01), Section 2 – Project Initiation, provides detailed guidance on project analysis and solution selection. An economic feasibility study or Cost Benefit Analysis (CBA) is prepared to assist in solution selection. Appendix D of the Project Management Guideline provides an overview, a background, and a procedure for performing a Cost Benefit Analysis.

A CBA provides the information needed to make an informed decision about the cost and benefits, or value, of various potential solutions. The CBA defines project objectives and alternative solutions in terms of costs and benefits. It also documents important assumptions used to derive the project costs and benefits. The final product is a consistent document that provides an understanding of the economic feasibility of the solutions being considered. A CBA is required for all major IT projects *(Code of Virginia, § 2.2-2019).* The completed CBA will be included as an attachment to the Project Proposal by using the required form defined by the CBA template that is available for download from VITA's Project Management Templates web page (URL address http://www.vita.virginia.gov/projects/cpm/templates.cfm). Also available for download on the templates page is a CBA Development Tool. The CBA Tool already includes the required CBA template and will, based on the project cost information entered by the project manager/sponsor, automatically calculate and populate many of the CBA Template fields. Use of the CBA Tool in the development of a Cost Benefit Analysis is not required, but is recommended.

After completing the analysis and solution selection process, the agency will seek development approval by preparing and submitting a business case or project proposal. Agencies will use the detailed project proposal (including risk assessment and Cost Benefit Analysis) and project charter templates found in Section 2 – Project Initiation, of the Commonwealth Project Management Guideline. All sections of the project proposal and project charter templates must be completed before submission to the PMD. Additionally, the project manager designee must

be qualified according to established Commonwealth standards before the project proposal and project charter are submitted to the Project Management Division.

In the project charter, the agency will propose the membership of an Agency Internal Oversight Committee for CIO approval *(Code of Virginia, § 2.2-2021 – Project Oversight).* Minimum membership requirements for the Internal Oversight Committee are: Proponent Agency – Agency Head (Chair), Project Sponsor, Project Manager, Customer/Stakeholder representative(s) as appropriate for the project; and VITA PMD. The agency submits electronic copies of the completed project proposal and project charter to the designated VITA PMD e-mail account. The agency must submit an electronic or paper copy of the project charter signature page signed by the agency head, project sponsor, and project manager (designee) to the VITA PMD.

Upon receipt of the electronic copies of the project proposal and project charter, PMD will perform an initial review of the documents and provide feedback to the agency. PMD will also coordinate a Proponent Secretariat Oversight Committee meeting to review the project proposal and charter. The Proponent Secretariat Oversight Committee will recommend approval or rejection of the project to the CIO. If the Committee recommends approval, the Proponent Secretary or Deputy Secretary will sign the charter. PMD will complete a final review of the project proposal and project charter and will recommend approval or rejection of the project to the CIO.

The final review by PMD will include an analysis of the project proposal and charter using balanced scorecard criteria approved by the ITIB. The balanced scorecard criteria for major IT project evaluation is found on the project management page of the VITA Website (http://www.vita.virginia.gov/projects/projects.cfm). PMD uses a modified Delphi methodology to conduct reviews of projects using the balanced scorecard evaluation criteria. The Delphi method of analysis is utilized to validate and quantify subjective analysis of independent reviewers. The modified approach requires independent review by two project management specialists. The results are consolidated and reviewed by the PMD Associate Director or a designated third Project Management Specialist. The PMD Associate Director will approve the final evaluation presented to the CIO and ITIB.

The CIO reviews the balanced scorecard recommendation, proposal, and charter. The ITIB has delegated authority to the CIO for approval or disapproval of major IT projects and procurements so long as the CIO provides notice to the ITIB members. If no member of the ITIB requests a review of the project within a five business day comment period, the CIO will issue a letter formally approving the project for development. If any member of the ITIB requests a review of the project, the CIO will develop and issue a recommendation to the Information Technology Investment Board. The CIO will direct PMD to coordinate (with the agency or institution) the presentation of the proposal and charter to the ITIB. PMD and the agency or institution will present the project to the ITIB through the SPARC. Upon approval of the ITIB, the Chair of the ITIB will issue a letter formally approving the project for development and, subject to CIO review and approval, may authorize procurements greater than or equal to $100,000. Contract awards and procurements for major IT project development activities will not be authorized before development approval by the ITIB.

2.1.2 Timeline

Major IT projects not included in the Agency ITSP require an ITSP amendment before being considered by the ITIB for development approval. Fifteen workdays are required for review and approval of an IT strategic plan amendment by VITA PMD.

Agencies may submit projects for development approval at any time. Normally, ITIB procedures allow Board Member to independently review the CIO recommendation to approve projects for development. Board Members may request projects be presented for discussion at the next board meeting. There is a 30 work day processing time associated with projects that may require review at a scheduled board meeting. The 30 work days includes review by Proponent Secretary Oversight Committee, PMD, CIO, and Board Members. Proposals and charters received within 30 workdays of a scheduled board meeting risk being deferred to the next board meeting. Specific meeting dates are posted on the ITIB Web site (http://www.vita.virginia.gov/ITIB/ITIB.cfm).

Upon development approval of a major IT project, initial baseline and project background information (derived from the project proposal and charter) is entered into the Commonwealth Major IT Project Status Report Dashboard (Dashboard). PMD coordinates the entry of this information with the project manager of the project.

2.2 Non-major IT Project Initiation

Non-major IT projects are technology projects with a total estimated cost less than or equal to $1 million, that are not mission critical, and do not have statewide application. Based on the recommendation of the VITA PMD, the CIO approves or disapproves planning (Section 1.10, Project Planning Approval) and development of non-major projects that have a cost between $100,000 and $1,000,000. Selected institutions of higher education (Virginia Community College System, and members [as of July 1, 2003] of the Virginia Association of State Colleges and University Purchasing Professionals) have delegated authority from the CIO to make the decision on planning approval and development of non-major IT projects from $100,000 to $1 million. An institution of higher education with delegated authority will provide regular status reports on non-major IT projects as required by the CIO. Delegated authority does not exempt the institutions of higher education from implementation of or adherence to Commonwealth policies and standards for the management of non-major IT projects. The following procedures apply to all non-major IT projects with a cost equal to or exceeding $100,000.

2.2.1 Project Development Approval

After a project has received planning approval (Section 1.10, Project Planning Approval), the agency will conduct an analysis of the project solutions. The Commonwealth Project Management Guideline (ITRM Guideline CPM 110-01), Section 2 – Project Initiation provides detailed guidance on project analysis and solution selection.

After agency management completes the project analysis and solution selection process, the agency will prepare and submit for approval a detailed project proposal and project charter using

the templates found in Section 2 – Project Initiation, of the Commonwealth Project Management Guideline. The Agency must submit electronic copies of the completed project proposal and project charter to the designated VITA PMD e-mail account. The agency must also submit an electronic or paper copy of the project charter signature page – signed by the agency head, project sponsor, and project manager (designee) – to the VITA PMD.

PMD will review the project proposal and charter, and recommend approval or disapproval of the project to the CIO. Upon CIO action, the agency is provided a project (approval/disapproval) decision notice.

2.2.2 Timeline

Non-major IT projects not included in the Agency ITSP must receive CIO planning approval through submission of an ITSP amendment before being considered by the CIO for development approval. Fifteen (15) workdays are required for review and approval of an IT strategic plan amendment by VITA PMD. Agencies should allow an additional 15 workdays for review and approval of the project proposal and charter by the CIO.

Section 3. Project Oversight

3.1 Major IT Project Oversight

Major IT projects are subject to periodic oversight review by the CIO. For major IT projects, the CIO is required by the *Code of Virginia* to establish internal agency oversight committees, multi-agency oversight committees for statewide application projects, and oversight structures for addressing issues that cannot be resolved by internal agency oversight committees. Effective with the publication of this updated standard, the PMD Project Management Analyst will develop an Oversight Strategy for each new major IT project, and an Oversight Plan that details how the project will be monitored for progress, tracked on issues, and evaluated for deliverables. The Oversight Plan is shared with the project's sponsor, manager, and significant project stakeholders to accurately communicate the expectations and requirements related to the oversight of their major IT project.

The Internal Agency Oversight Committee structure and designated committee members are identified in the project charter. When the Internal Agency Oversight Committee cannot resolve an issue, PMD will assist the agency in coordination with the Chair of the Proponent Secretariat Oversight Committee to convene a meeting of that committee. The Proponent Secretariat Oversight Committee will review and resolve the issue or make recommendations to the CIO for issue resolution beyond the scope of the secretariat. The CIO will review the recommendations of the Proponent Secretariat Oversight Committee. The CIO may approve or disapprove an issue resolution strategy or may recommend to the ITIB suspension or termination of the project.

The baseline for project cost (budget), schedule, and performance (including scope) established in the project charter, is the initial baseline for the project. Upon completion of detailed planning, the IAOC will establish an updated project baseline with approval of the project plan by the CIO. The Commonwealth Technology Management Policy (COV ITRM Policy GOV 2002-02.1) states, "The CIO, upon recommendation of the Internal Agency Oversight Committee, must approve project plans including project cost, schedule, and performance baselines for Major IT Projects." The CIO authorizes PMD to review and approve the project plans if the project baselines accurately reflect the project charter.

The Internal Agency Oversight Committee will approve all changes to the cost or schedule baseline where the new cost or schedule estimate does not exceed 10% of the cost or schedule estimate in the approved baseline. If a project baseline change results in increased scope, increased cost, or schedule change (delay) that is greater than 10% from the approved project charter; the Internal Agency Oversight Committee will provide written notification to the CIO, the Chair of the Proponent Secretariat Oversight Committee, and to PMD. The Proponent Secretariat Oversight Committee will review and recommend approval or disapproval to the Commonwealth CIO. The Commonwealth CIO approves or disapproves changes to the baseline that exceed 10%. Additionally, the CIO reports the approved changes in baseline of major IT projects to the ITIB. The CIO may also suspend the project or recommend termination of the project to the ITIB.

Agencies may request suspension, cancellation of active projects, or reactivation of suspended projects. The CIO will approve all suspension, cancellation, and reactivation requests made by agencies. To reactivate a project, agencies will submit a written request and revised charter and proposal through PMD and the Proponent Secretariat Oversight Committee. Based on staff and Proponent Secretariat Oversight Committee recommendations, the CIO may approve suspension, cancellation, and reactivation or require review and approval of the project by the ITIB.

3.2 Enterprise IT Project Oversight

Enterprise projects (multi-agency, statewide application projects) are major IT projects. The CIO will establish a multi-agency oversight committee for enterprise projects composed of representatives from all agencies or institutions of higher education impacted by the project. The multi-agency oversight committee will exercise primary project oversight, in the same manner and with the same limitations, as the internal agency oversight committee.

3.3 Non-major IT Project Oversight

Oversight of non-major IT projects is exercised directly by the agency through the project sponsor. Sponsors for non-major IT projects are encouraged but are not required to establish an oversight committee. The project sponsor approves the project plan and establishes the project baselines. The project sponsor also approves changes to project baselines. When a change to the project baseline results in a revised cost or schedule estimate which exceeds 20% of the cost or schedule estimate documented in the project charter, the project sponsor must notify PMD of the baseline change. In addition, the project sponsor must notify PMD of any changes to project performance or scope documented in the project charter. PMD will review and make recommendations to the CIO. The CIO must approve or disapprove changes to charter performance and scope, budget, or schedule resulting in variances exceeding 20% of the estimates established by the approved project charter.

Section 4. Independent Verification and Validation (IV&V)

Independent Verification and Validation is a highly successful quality assurance process carried out by an independent third party. IV&V grew out of a best practice developed in the National Aeronautics and Space Administration. The Technology Management Policy (COV ITRM Policy GOV 2002 - 02.1) requires all major IT projects to develop and implement an IV&V strategy. The policy states:

> *As a supplement to regular project review and oversight, project managers for all Major IT Projects must implement an independent verification and validation (IV&V) strategy. IV&V should be performed by an organization that is technically, managerially, and financially independent of the development organization. The IV&V strategy for Major IT Projects will be reviewed and approved as part of the Major IT Project oversight process. IV&V of Non-Major IT Projects is encouraged.*

The IV&V best practice is to acquire the services of a qualified and independent service provider. Qualified service providers will have experience and training in verification and validation audits commensurate with the scope and nature of the project. In all major IT projects, the service provider must be completely independent and have a separate budget and line of responsibility from that of the project manager. IV&V service providers must be free of any conflict of interest in a project where they provide IV&V contracted support. IV&V service providers are disqualified from providing additional consulting resources (outside of IV&V) on any project that they are auditing under contract.

Verification and Validation (V&V) are processes that seek to:

- Verify, objectively, that the results of project activities fulfill their requirements
- Validate, objectively, that the project products and services satisfy user needs under defined operating conditions

IV&V adds value to project management and oversight by:

- Increasing the probability that project products and services meet their requirements
- Improving product and service performance
- Supporting a sponsor's decision to accept a product or service
- Reducing development cost
- Shortening the project schedule
- Reducing risk
- Improving project management and oversight review and decision making

Agencies requesting development approval for a major IT project must identify the proposed Independent Verification and Validation (IV&V) milestones and describe the IV&V strategy for the project in the project proposal (Project Milestones) and project charter (Project Organization) respectively. Following project development approval, project managers for all major IT projects must develop a comprehensive plan to implement IV&V strategy.

Generally, project managers design their IV&V plans to fit the size, scope, and complexity of the project. During detailed project planning, the comprehensive IV&V plan is completed as part of the Quality Management Plan. IV&V plans for high complexity major IT projects will include the review of the technical, financial, and management aspects of the project and will establish scheduled IV&V reviews and reports as follows:

- At completion of the detailed project plan and before project execution begins.
- At a minimum, one in-progress review during project execution and quarterly reviews for all projects with schedules greater than 9 months duration.
- At the testing phase (if testing is a component of the project), validate the test plan and testing.
- At project closeout to validate the success of the project.

IV&V plans for medium complexity major IT project will include the review of the technical, financial, and management aspects of the project and will establish scheduled IV&V reviews and reports as follows:

- At completion of the detailed project plan and before execution begins.
- At a minimum, one in-progress review during project execution and semi-annual reviews for all projects with schedules greater than 18 months duration.
- At project closeout to validate the success of the project.

IV&V plans for low complexity major IT project will include the review of the technical, financial, and management aspects of the project and will establish scheduled IV&V reviews and reports as follows:

- At completion of the detailed project plan and before execution begins.
- At project closeout to validate the success of the project.

4.1 IV&V – Roles and Responsibilities

Chief Information Officer

The CIO is required by *Virginia Code* to oversee major IT projects so that the Commonwealth IT Investment Board, the Governor, and the General Assembly can be assured that IT project investments are well managed and will deliver the expected outcomes and return on investment. The CIO directs the VITA PMD to develop, implement, and manage an ongoing centralized program for IV&V of major IT projects.

Proponent Secretariat Oversight Committee

As needed, PMD provides copies of IV&V reports to the members of the Proponent Secretariat Oversight Committees. Committees review reports and any analysis provided by PMD. When appropriate, the Proponent Oversight Committee directs actions or makes recommendations to the CIO.

Project Management Division

PMD will qualify IV&V service providers, maintain a list of qualified IV&V service providers, approve selection of IV&V service providers for major IT projects, and coordinate IV&V service provider activities among major IT projects. PMD will also analyze vendor reports for trends and issues. As necessary, PMD will prepare formal reports on the analysis of major IT projects.

Internal Agency Oversight Committee

The Internal Agency Oversight Committee will review and approve the IV&V plan as a component of the project plan. After the Internal Agency Oversight Committee approves the IV&V plan the project manager submits the approved plan to PMD for review by the CIO.

Project Sponsor

The project sponsor is the individual, usually part of the agency management team, who makes the business case for the project. This individual usually has the authority to define project goals, secure resources, and resolve organizational and priority conflicts.

When agencies request development approval for a major IT project, the sponsor is responsible for the project's proposal and charter. The project sponsor must identify the proposed Independent Verification and Validation (IV&V) milestones and describe the IV&V strategy for the project in the project proposal (Project Milestones) and project charter (Project Organization) respectively. The sponsor must allocate funding in the proposal for IV&V. The project sponsor will also work with the project manager to develop the comprehensive IV&V plan and will issue a statement of work (SOW) to the service provider(s). When multiple providers respond to the issued SOW, the sponsor will select a provider for the IV&V. PMD will assist the project sponsor in development of the SOW and selection of the provider. The project sponsor is responsible for acceptance of IV&V report deliverables.

Project Manager

The project manager will assist the sponsor in developing milestones and budgets as necessary. Following project development approval, project managers for all major IT projects must develop a comprehensive plan for the project and will incorporate the IV&V schedule in the plan. Project managers will have direct interface with the IV&V providers and will utilize the findings and recommendations in managing the project. The project manager will coordinate contracted vendor review and responses to IV&V findings as appropriate.

IV&V Provider

Qualified service providers will have experience and training in verification and validation audits commensurate with the scope and nature of the project. In any IV&V effort, the service provider must be completely independent and have a separate budget and line of responsibility from that of the project manager. IV&V service providers will not be part of the agency responsible for the project. All IV&V service providers must be free of any conflict of interest in a project where

they provide IV&V contracted support. Conflict of interest may include contracting, sub-contracting, or actively bidding on the project. IV&V service providers are disqualified from providing additional consulting resources (outside of IV&V) on a project for which they are contracted to provide IV&V services.

4.2 IV&V – Process Steps

Step 1 – Project Initiation

The process to implement IV&V begins with initial planning for a major IT project during the project initiation phase of the project life-cycle. The project sponsor reviews the Commonwealth Technology Policy and Project Management Standard for required IV&V activities. The project sponsor insures that adequate funding is allocated for IV&V in the project proposal and that the required IV&V reviews are scheduled as milestones in the proposal and charter. The sponsor will also describe the IV&V strategy for the project in the organization section of the project charter.

Step 2 – Project Detailed Planning

After the project is approved for development, a detailed project plan is developed. The IV&V component of the project plan is developed as part of the quality management planning during detailed project planning. An IV&V plan is scaled to fit the size, scope, and complexity of the project. The complexity of a project is determined using the complexity matrix appended to the Project Management Standard. IV&V plans for major IT projects will include the review task for the technical, financial, and management aspects of the project and a schedule of the required IV&V reviews and reports.

The Internal Agency Oversight Committee will review and approve the IV&V plan as a component of the project plan. After the Agency Oversight Committee approves the IV&V plan, the project manager submits the approved plan to PMD for review by the CIO.

Step 3 – Procure IV&V Provider Services

A Statement of Work (SOW) template in Appendix F2 can be used to procure IV&V services from any qualified provider. Adequate time should be allowed for potential providers to respond to the SOW. If a meeting with the project team is necessary to facilitate responses, all providers solicited with the SOW will be provided an opportunity to meet with the project team prior to submitting a response. The SOW should identify when and where the meeting will occur.

Multiple agencies may collaborate on a single SOW for multiple projects in order to acquire better prices or improved services. When collaborative efforts occur, a memorandum of agreement will be developed by the participating agencies and signed by all participating agency heads. A single agency will be designated as the lead agency responsible for the financial and contract management associated with the effort. Each participating agency is responsible for acceptance of deliverables as outlined in paragraphs that follow. The SOW will clearly outline the agreement and attachments will be modified to reflect the requirements of each project.

The project sponsor and manager complete the template Statement of Work (SOW) by modifying the parts identified by italics, and by checking the boxes for required review tasks found in the task lists provided by PMD. After approval by the project sponsor, the SOW is submitted electronically to PMD IV&V manager via email. The SOW is sent to PMD@vita.virginia.gov, with a subject line of **Project X SOW for IV&V – (date).**

PMD will review the IV&V SOW within 3 working days and approve or request modifications as needed. PMD sends the approved IV&V SOW and a list of qualified providers to the project sponsor and manager. The project sponsor and manager will screen the qualified providers for potential conflicts due to an existing project relationship, and then send the SOW to the screened providers. The SOW may be sent to one or more providers. SOW responses are reviewed by the project sponsor and manager, and evaluated based on the qualification standards detailed in Appendix F1. Recommendations are sent, in priority order to PMD, by email to PMD@VITA.Virginia.Gov, with a subject line of **Project X SOW Responses for IV&V – (date).** PMD will review and approve the provider selection within 3 working days.

The project sponsor and manager will submit an Agency Procurement Request (APR) for SOWs exceeding $100,000. APRs are submitted to PMD using the following e-mail address: PIR@VITA.Virginia.Gov.

Step 4 – IV&V Execution

The project sponsor or manager will notify the selected provider and coordinate the start of the IV&V effort. The project manager and IV&V provider will develop a detailed schedule of the project's IV&V reviews. The project manager will provide this detailed schedule to PMD. PMD will maintain and track a comprehensive IV&V schedule for all major IT projects.

During the IV&V reviews, the IV&V provider will rely on existing project documentation unless doing so compromises their effectiveness or limits their ability to draw accurate conclusions. The project team will not be required to create new documentation to feed the review process where existing documentation already includes the needed information. The IV&V provider should adapt to the documentation and tracking mechanisms already in place as a source of information rather than expecting new documentation to be created to facilitate the review. The IV&V provider should operate in a manner that is unobtrusive as possible while still completing their review by the required process.

The IV&V provider will provide draft reports and presentations to the project sponsor and manager for review and correction prior to acceptance and release of the final report. The project sponsor and manager cannot approve, modify, or reject the content of a report but may provide comments and feedback on drafts within five (5) business days of receipt of a draft. Project managers will coordinate reviews and responses to IV&V reports by the project team including contractors and service providers. The IV&V provider will submit final draft reports to the project sponsor for final deliverable acceptance. The project sponsor will accept or reject the individual IV&V reports. The project sponsor will review and return comments within five

(5) business days of receipt of each final draft report. The IV&V provider will then submit final reports within two (2) business days.

The IV&V provider will produce a final report with detailed findings (both positive and negative) that include – best practices identified and employed; identified lessons learned; and recommendations for improvement. The final report will be provided to the project sponsor, project manager, agency project management office (PMO), and PMD. The project sponsor or PMO will distribute copies of the report to the Internal Agency Oversight Committee (IAOC) and the project manager may distribute copies to the project team. PMD will distribute copies as necessary to the proponent Secretariat Oversight Committee, the Commonwealth Chief Information Officer (CIO) and the Strategic Planning and Review Committee (SPARC) of the Information Technology Investment Board (ITIB). In addition, the IV&V provider will make presentations to the project sponsor, project team, and IAOC as requested.

PMD will analyze all reports submitted by IV&V providers. PMD will identify trends and issues, and prepare formal recommendations for decisions by the CIO and ITIB as necessary.

To ensure IV&V process improvement, PMD will maintain a knowledge base repository where received findings and recommendations are held for analysis and identification of new processes or change to existing IV&V processes.

4.3 IV&V – Issue Resolution

If contract or performance issues arise with the IV&V provider during the IV&V process, the project sponsor must immediately notify the PMD IV&V manager of the issue. The project sponsor may also request a meeting of the Internal Agency Oversight Committee to address the issue.

When the Internal Agency Oversight Committee cannot resolve an issue, PMD will assist the agency in coordination with the Chair of the Proponent Secretariat Oversight Committee to convene a meeting of the Proponent Secretariat Oversight Committee. The Proponent Secretariat Oversight Committee will review and resolve the issue or make recommendations to the CIO for issue resolution beyond the scope of the secretariat. Appendix F3 illustrates the IV&V resolution process.

4.4 IV&V – Supplemental Information

IV&V Qualification Requirements – Appendix F1
IV&V Statement of Work Template – Appendix F2
IV&V Resolution Process Flow – Appendix F3

Section 5. IT Project Documentation

The degree of project complexity drives both the amount of control required and extent of project documentation necessary to adequately manage a project. In general, the requirement for documentation during planning, execution and control, closeout, and operations and support is not based on major and non-major project categories. The PM of a major or non-major project is required to utilize the Complexity Model (defined in Appendix A) to define the documentation requirement. The completed Complexity Model will be retained as a component of the project management plan. (The Complexity Model template (and instructions), can also be downloaded from http://www.vita.virginia.gov/projects/cpm/templates.cfm). There are some exceptions where a specific documentation requirement for major projects is specified in *Code* or policy. Exceptions are noted in Appendix B.

5.1 Project Planning

Project planning is the process of defining and organizing activities and resources to deliver a unique product or service. The project plan is the primary document developed during the planning phase of the project lifecycle and communicates project activities in terms of: what tasks will be performed; who will perform the tasks, when will the tasks be performed, what resources will be applied to accomplish the tasks, and how the tasks will be sequenced.

The agency head or project sponsor should approve project plans for IT projects. The Technology Management Policy (COV ITRM Policy GOV 2003-02.1) states, "The CIO, upon recommendation of the Internal Agency Oversight Committee, must approve project plans including project cost, schedule, and performance baselines for Major IT Projects." The CIO authorizes PMD to review and approve the project plans if the project baselines accurately reflect the project charter. Project plans are revised as needed to reflect changes approved by the agency project management organization and Internal Agency Oversight Committee (reference paragraph 2.3.1, Major IT Project Oversight).

A fundamental component of project planning is the development of metrics to gauge and evaluate project progress. The primary tool used in performance measurement is earned value analysis. The application of earned value analysis is documented in the project performance plan.

5.2 Project Execution and Control

Project execution and control is the phase of the project lifecycle where the tasks that build the unique product or service are executed. Project execution and control for major IT projects begins when the IAOC establishes the baseline defined by the PMD/CIO approved project plan, and when the resources necessary for executing the tasks are assembled.

Earned value analysis is the preferred method of performance measurement, or control, and is employed during the project execution and control phase of the project lifecycle. Earned value analysis integrates scope, cost, and schedule measures to assess project performance. Results

from an earned value analysis may indicate potential deviation from the project plan baseline. Earned value analysis processes are incorporated into the project through performance planning.

The Agency Internal Oversight Committee will conduct regular reviews of major IT project execution. Project managers must report the status of major IT projects to the agency head, the proponent Secretary, and the CIO via the Commonwealth IT Project Status Report "Dashboard," according to the reporting schedule established by the CIO. For non-major IT projects, the agency will conduct regular reviews of the project execution and establish procedures for regularly reporting project status to the agency head and other key stakeholders.

5.3 Project Closeout

Project closeout is the last phase in the Commonwealth project lifecycle. Closeout begins when the user accepts the project deliverables, establishing operational products or services, and the project oversight authority concludes that the project has satisfied the project purpose stipulated in the project charter. The major focus of project closeout is administrative closure, logistics, and documentation of lessons learned or best practices.

Major IT projects will submit a final project status report (entered into the "Dashboard" by the Project Manager and approved by the CIO) and a formal closeout report approved by the Agency Internal Oversight Committee. Project sponsors will approve and submit to PMD project closeout reports for non-major IT projects with a cost equal to or exceeding $100,000.

5.4 Operations and Support

Once a project is complete, products and services are transferred to the operational unit of the organization where those products and services are managed and supported. A Post Implementation Review (PIR) will be performed by the agency for major IT projects (as required in the Technology Management Policy) after the asset has become operational for a sufficient period of time (typically six to 12 months). The PIR evaluates whether the product or service is delivering the expected results. Post implementation review should, validate the project cost benefit analysis and return on investment established in the project proposal. A copy of the PIR report will be submitted to PMD for review.

Appendix A. IT Project Complexity Model

The IT Project Complexity Model provides a scoring mechanism to determine the complexity of Commonwealth IT projects. There are many factors, beyond the basic definition of major and non-major projects, to consider when deciding on the level of required documentation and oversight for a given project. The following questions and responses were developed to assist agencies in determining the complexity of selected IT projects. The Project Complexity Calculator – Scoring Matrix has been validated using the Commonwealth IT investment portfolio and Dashboard. Select the most appropriate response and total the points to determine the complexity level of a project.

	Project Complexity Calculator - Scoring Matrix								
#	**Question**	**Response 1**	**Score**	**Response 2**	**Score**	**Response 3**	**Score**	**Response 4**	**Score**
1	What is the total project cost?	Less than $100,000	10	Between $100,000 and $500,000	20	Between $500,000 and $1,000,000	30	Greater than $1 Million	40
2	What is the estimated total cost for hardware?	Less than $100,000	2	Between $100,000 and $500,000	4	Between $500,000 and $1,000,000	6	Greater than $1 Million	8
3	What is the estimated total cost for software?	Less than $100,000	2	Between $100,000 and $500,000	4	Between $500,000 and $1,000,000	6	Greater than $1 Million	8
4	What is the estimated cost of application development or software configuration services?	Less than $100,000	2	Between $100,000 and $500,000	4	Between $500,000 and $1,000,000	6	Greater than $1 Million	8
5	How much confidence is there in the expenditure and funding projections?	Accuracy of budget estimate is greater than 95% and less than or equal to 100%.	2	Accuracy of budget estimate is greater than 85% and less than or equal to 95%.	4	Accuracy of budget estimate is greater than 50% and less than or equal to 85%	8	Accuracy of budget estimate is less than or equal to 50%.	16

Appendix A. Project Complexity Model (Continued)

#	Question	Response 1	Score	Response 2	Score	Response 3	Score	Response 4	Score
6	What percentage of the agency budget does the project represent?	Project is less than 2% of the agency budget	2	Project is greater than or equal to 2% but less than 5% of the agency budget	4	Project is greater than or equal to 5% and less than 15% of the agency budget	6	Project is 15% or more of the agency budget	8
7	Is the project sponsor fully resourcing the project?	Sponsor owns all the resources needed	2	Sponsor owns most of the resources needed	4	Sponsor has control of most of the resources needed	6	Sponsor has control of some of the resources needed	12
8	What is the size of the Project Team (Full Time Equivalents - FTE)?	No FTEs assigned	2	1 to 2 FTE	3	2 to 5 FTE	6	5 or more FTE	12
9	What is the project manager's authority over the project?	High	2	Moderate	4	Limited	8	Low	16
10	To what degree are the project team members collocated?	90-100% of the team in the same location	1	50%-90 of team in same location	2	25% - 50% of team in same location	4	25% or less of team in same location	6
11	What is the project's duration?	Duration is less than 6 months	2	Duration is 6 to 12 months	4	Duration is 12 to 24 months	8	Duration is greater than 24 months	16
12	How much variation in the schedule can be tolerated?	Schedule is not fixed and therefore highly flexible	3	Schedule can tolerate major variations	6	Schedule can tolerate minor variations	9	Schedule is fixed	12
13	Are there any dependencies and/or inter-related projects?	There are no major dependencies or inter-related projects	3	There are some dependencies and/or inter-related projects, but considered low risk	6	There are some major dependencies and/or inter-related projects, that create a moderate level of risk	9	There are significant dependencies and/or inter-related projects that place the project at a high level of risk	12

Appendix A. Project Complexity Model (Continued)

#	Question	Response 1	Score	Response 2	Score	Response 3	Score	Response 4	Score
14	Has the agency and/or vendor executed similar projects?	Agency and vendor have executed many similar projects successfully	2	Agency or vendor have executed several similar projects	4	Agency or vendor have executed a similar project	8	Neither the agency nor the vendor has executed a similar project	12
15	Does the project address state and Federal mandates?	The project has little or no direct impact on accomplishment of state and Federal mandates	2	The project enhances accomplishment of state and Federal mandates	4	The project is important to the accomplishment of state and Federal mandates	8	The project is critical to accomplishment of sate and Federal mandates	12
16	How will the failure of the project impact the customers?	There is no impact of project failure on the customers	0	Impact of project failure on customers is minimal	4	Impact of project failure on customers is moderate	8	Impact of project failure on customers is high	16
17	What is the anticipated involvement of the users (customers) with System Design and Testing?	Not applicable	0	Highly involved in System Design and Testing, provide significant input, and have significant ownership of system	4	Play minor roles or have moderate impact on System Design and Testing	6	Minimal or no user involvement with System Design and Testing or little user input into process	8
18	What is the anticipated involvement of the End Users in the Definition of Project Requirements and Scope?	Requirements well-established, scope defined, users accept with no changes	2	Requirements well-established, scope defined, users accept with few changes	4	Requirements defined but changes to scope expected from users	8	Rapidly changing size or scope; requirements not defined and not accepted users	16

Appendix A. Project Complexity Model (Continued)

#	Question	Response 1	Score	Response 2	Score	Response 3	Score	Response 4	Score
19	How important is the project to successful execution of agency core business activities?	The project is/has little or no direct impact on current core business activities	2	The project enhances organization core business activities	4	The project is important to the organization core business activities	6	The project is critical to the organization core business activities	8
20	How significant will the project's impact be on the business process?	No business process is impacted	0	No critical business processes are impacted	4	Critical business processes are impacted	6	Most business processes are impacted	8
21	How large of an organizational impact will the project have in the Commonwealth?	Impacts a single business unit	2	Impacts a number of business units	4	Impacts a whole agency	6	Impacts more than one agency	12
22	Is the project using proven technology?	The technology is proven and has been available for a number of years	2	The technology has been available for several years	4	The technology has been developed but is very new	8	The technology is in development	12
23	Is the proposed solution applied in a tried or proven way?	Application of the technology is tried and proven	3	Application of the technology has been tried and is partially proven	6	Application of the technology has been tried but is not proven	9	Application of the technology has never been tried	12

Appendix A. Project Complexity Model (Continued)

#	Question	Response 1	Score	Response 2	Score	Response 3	Score	Response 4	Score
24	Does this project require data conversion?	No data conversion is required	0	Data conversion from other sources has little impact	4	Data conversion from other sources has some impact	6	Data conversion from other sources has a significant impact	8
25	What is the overall risk evaluation of the project (see project proposal)?	No risk	5	Low risk	10	Medium risk	20	High risk	40
			55		**125**		**211**		**338**

Low Complexity	Medium Complexity	High Complexity
55-124 range	**125-210 range**	**211- 338 range**

Appendix B. IT Project Documentation Summary Table

The Project Documentation Summary Table provides a list of the "Required Information" for a project based on project complexity*. The templates listed in this table, from the Commonwealth Project Management Guideline, are formats for "Required Information," based on best practices. The Commonwealth Project Management Guideline templates are identified with the word "(Template)." The only required templates in this table are the Project Charter, Project Proposal, Preliminary Risk Analysis, Cost Benefit Analysis, and the Project Closeout Report template.

*See the Project Complexity Model or Calculator to determine the level of complexity.

Documentation	Required Information	High Complexity	Medium Complexity	Low Complexity
Project Development Approval				
Project Charter (Template)				
	Template Required as Provided	X	X	X
Project Proposal (Template)				
	Template Required as Provided	X	X	X
Preliminary Risk Analysis (Template)				
	Template Required as Provided	X	X	X
Cost Benefit Analysis (Template)				
	Template Required as Provided	X	X	X
Project Planning				
Project Complexity Model (Template)		X	X	X
Project Plan Executive Summary (Template)				
	Points of Contact	X		
	Contractor Information	X		
	Charter - Summary	X		

Appendix B. IT Project Documentation Summary Table (Continued)

Documentation	Required Information	High Complexity	Medium Complexity	Low Complexity
	Business Problem	x	x	x
	Assumptions	x	x	x
	Project Description	x	x	x
	Project Scope	x	x	x
	Summary Statement - Appendices	x		
Project Performance Plan (Template)				
	Project Business Objectives, Goals and Metrics	x	x	x
	Deliverable Description and Acceptance Criteria	x	x	
Work Breakdown Structure (Template)				
	WBS Elements	x	x	
	Resource Requirements	x	x	
Resource Plan (Template)				
	Resource Allocated	x		
	Resource as related to task, cost and duration	x		
	Resource differences from project charter	x		
Project Schedule (Template)				
	WBS Elements	x	x	x
	Estimated Duration	x	x	x
	Start and Finish Dates	x	x	x

Appendix B. IT Project Documentation Summary Table (Continued)

Documentation	Required Information	High Complexity	Medium Complexity	Low Complexity
	Resource Requirement	x	x	x
	Predecessor Task (if applicable)	x	x	x
Budget Plan (Template)				
	Funding Source	x	x	x
	Planned Expenditures by WBS Elements	x	x	
	Contingency (Risk) Budgeting	x	x	
	Planned Expenditures	x	x	
	Project Spending Plan	x	x	
Procurement Plan (Template)				
	Products, Goods, or Services to be Procured	x		
	Procurement Schedule – Task/Procurement Matrix	x	x	
Risk Management Plan (Template)				
	Risk Management Strategy	x		
	Risk Identification Process	x	x	x
	Risk Evaluation	x	x	x
	Risk Mitigation Options	x	x	x
	Risk Plan Maintenance	x		
	Risk Management Responsibilities	x	x	
	Risk Mitigation Cost	x		

Appendix B. IT Project Documentation Summary Table (Continued)

Documentation	Required Information	High Complexity	Medium Complexity	Low Complexity
	Contingency (Risk) Budget	x	x	
Communications Plan (Template)				
	Stakeholder Information Requirements	x		
	Information Descriptions, Collection, and Reporting	x		
	Distribution Methods	x		
	Distribution Groups	x		
	Method for Updating the Communications Plan	x		
Change and Configuration Management Plan				
	Change Control Items	x	x	
	Change Control Process	x	x	
	Configuration Management Control Items	x	x	
	Configuration Management Control Process	x	x	
	Naming and Marking Methods	x		
	Submission and Retrieval of Control Items	x		
	Version Control	x		
	Storage, Handling, and Disposition of Project Media	x		
Quality Management and IV & V Plan (Template)				
	Product Testing	x	x	
	Project Auditing	x		

Appendix B. IT Project Documentation Summary Table (Continued)

Documentation	Required Information	High Complexity	Medium Complexity	Low Complexity
	IV & V for Major IT Projects only (see section 2.4 for specific requirements)	x	x	x
Project Execution and Control				
Project Status Report (Template)				
	Previous Period Status	x	x	
	Current Period Status	x	x	
	Significant Accomplishment (Current Period)	x	x	x
	Planned Activities for Next Period	x	x	x
	Project Issues	x	x	x
	Action Items	x	x	
	Risk Status	x	x	
	Resource Usage	x	x	
Change Control Request (Template)				
	Proposed Change Description	x		
	Justification for Proposed Change	x		
	Impact Statements	x		
	Change Request Initial Review and Management Decision	x		
Issue Log and Issue Management Document (Template)				
	Issue Type	x		

Appendix B. IT Project Documentation Summary Table (Continued)

Documentation	Required Information	High Complexity	Medium Complexity	Low Complexity
	Potential Impact	x		
	Issue Assignment	x	x	
	Issue Resolutions Alternatives and Recommendations	x	x	
	Management Action, Recommendation and Approval Signatures	x		
User Acceptance (Template)				
	Project Deliverables and Acceptance Criteria Validation	x	x	
	Outstanding Issues and Resolution Plan	x	x	
	Acceptance Signatures	x	x	
Project Closeout Report (Template) **				
	Full Template	x	x	x
Operations and Support				
Post Implementation Report for Major IT Projects				
	How well the deliverable solved the Business Problem identified in the project charter	x	x	x
	Impact the deliverable had on the Agency Core Business Activities	x	x	x
	Project Performance Measures	x	x	x
	Actual operational cost versus projected operational cost	x	x	x

Appendix B. IT Project Documentation Summary Table (Continued)

Documentation	Required Information	High Complexity	Medium Complexity	Low Complexity
	User acceptance or satisfaction with the delivered product	x	x	x
	Organizational change required or resulting from the deliverable	x	x	x
	Actual Return on Investment for the period versus projected return on investment	x	x	x

**Major and non-major IT projects > $100,000

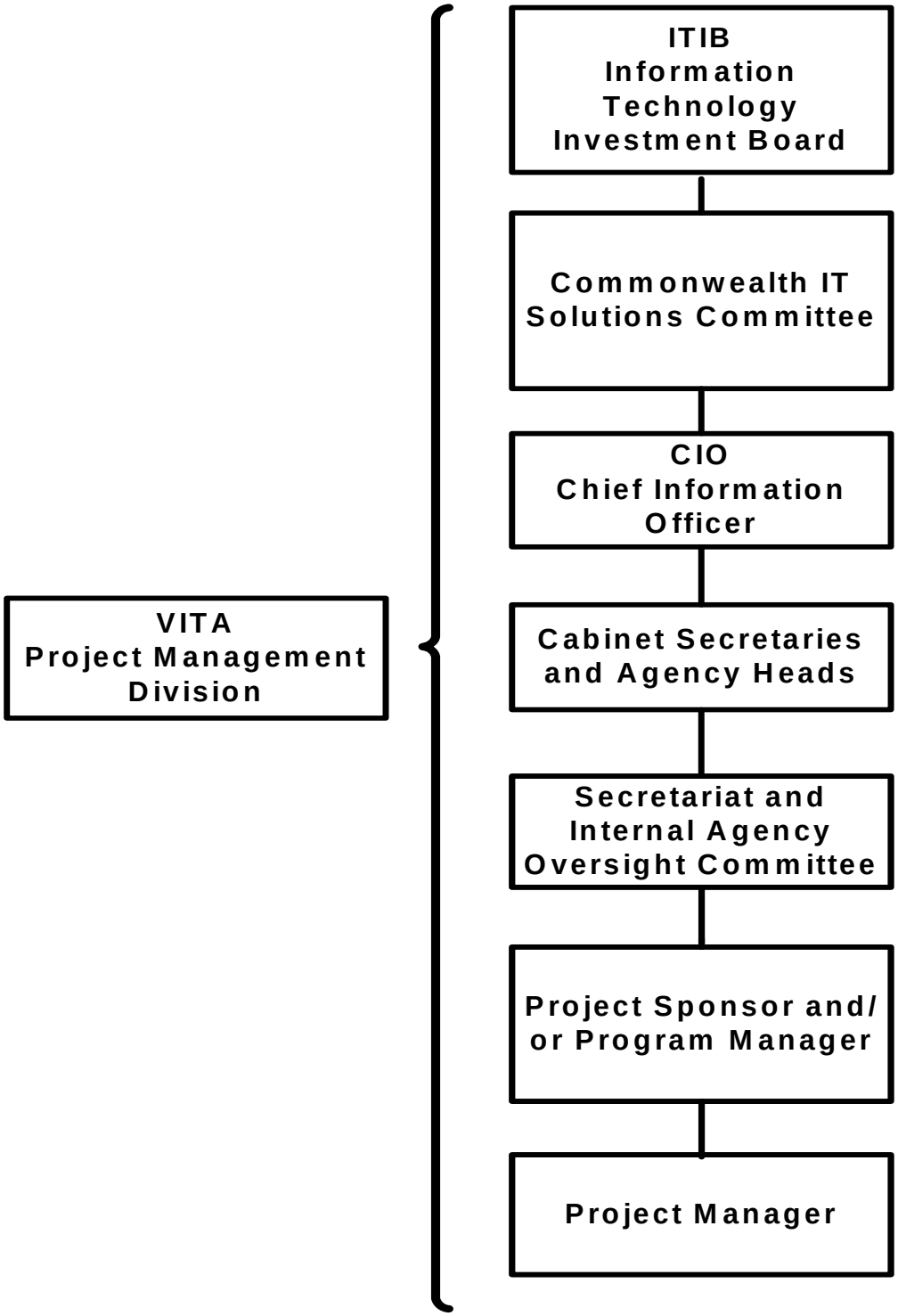
Appendix C. Project Management Lifecycle – Major IT Projects

Lifecycle Phases	**Selection**	**Initiation**	**Planning**	**Execution & Control**	**Closeout**	**Operations & Support**
Decision Points	**Approved for Planning** →	**Approved for Development** →	**Baseline Approved** →			
Roles and Responsibilities for Project Management						
IT Investment Board (ITIB)		Approve for Development	May Terminate Project	May Terminate Project		
Chief Information Officer (CIO)	Approve Agency IT Strategic Plan	Recommend Project Initiation to ITIB	Resolve Issues as Required Modify, Suspend, or Recommend Termination	Approve Project Status Report (Dashboard) and Review Project IV&V Reports Modify, Suspend, or Recommend Termination		
Cabinet Secretaries and Agency Heads	Selects Projects to Include in the IT Strategic Plan	Approves project proposal		Evaluates Overall Project Progress		Evaluates Post Implementation Report
Secretariat and Internal Agency Oversight Committee			Validates, Recommends or Approves Project Plan as Appropriate	Review Project Progress (when directed) and Review Project IV&V Reports		
VITA Project Management Division (PMD)	Recommend Approval of IT Strategic Plan to CIO	Recommend Project Initiation to CIO/SPARC	Assist and Support Project Planning Review Plan for CIO	Review Project Progress Assist and Support Project Development	Complete Final Project Evaluation	Review Post Implementation
Project Sponsor/Program Manager	Select project in Agency IT Strategic Plan	Submit Project and Proposal	Review Required and Approves Documentation – COV IT PM Standard	Review Required Documentation – COV IT PM Standard Review Project IV&V Reports	Submit Project Closeout Report	Conduct Post Implementation Review Submits Post Implementation Report
Project Manager		Develop project proposal and Charter	Submit Required Documentation – COV IT PM Standard	Submit Required Documentation – COV IT PM Standard Review Project IV&V Reports	Complete Project Closeout Report (Template)	

Appendix D. Project Management Lifecycle – Non-major IT Projects Greater than or Equal to $100,000

Lifecycle Phases	**Selection**	**Initiation**	**Planning**	**Execution & Control**	**Closeout**	**Operations & Support**
Decision Points	**Approved for Planning** →	**Approved for Development** →	**Baseline Approved** →			
Roles and Responsibilities for Project Management						
Chief Information Officer (CIO)	Approve Agency IT Strategic Plan (Approve Projects for Planning)	Approve Project for Development	Resolve Issues as Required Modify, Suspend, or Terminate	Monitor Project Progress Modify, Suspend, or Terminate		
VITA Project Management Division	Recommend Approval of IT Strategic Plan to CIO	Recommend Project Initiation to CIO/SPARC	Assist and Support Project Detailed Planning	Review Project Progress Assist and Support Project Development	Reviews Project Closeout Report	
Project Sponsor/Program Manager	Select Project in Agency IT Strategic Plan	Submit Project and Proposal	Review Required and Approve Documentation – COV IT PM Standard	Review Required Documentation – COV IT PM Standard	Submit Project Closeout Report	Conduct Post Implementation Review Submits Post Implementation Report
Project Manager		Develop project proposal and Charter	Submit Required Documentation – COV IT PM Standard	Submit Required Documentation – COV IT PM Standard	Complete Project Closeout Report (Template)	

Appendix E. Commonwealth IT Project Management Governance Structure



Generally, project reporting and decision requests flow from the bottom to the top. Approvals and information request flow from the top to the bottom. The VITA Project Management Division supports the entire governance structure.

Appendix F1. IV&V – Provider Qualification Requirements

IV&V Service Provider - Mandatory Qualifications

Respondents to this SOW must provide evidence of successful completion of a minimum of three (3) IV&V reviews within the past five (5) years. Two of the three Reviews must be for duration of at least two months and have included a staff of at least 2 team members involved in performing IV&V tasks. Each IV&V Review reference must include the following information:

- A generic system, product or service description including the size and complexity of the effort.

- Type of IV&V reviews performed.

☐ Audit-Level

☐ Full-Phase

☐ Full-Technical

☐ Other (specify) _____

- Project areas reviewed.

☐ Planning

☐ Project Management

☐ Requirements Analysis

☐ Testing

☐ Training

☐ Implementation

☐ Other (please specify) _____

- IV&V tasks performed.

☐ Verify Project Plan Exist

☐ Evaluate Estimating and Scheduling Processes

☐ Verify Design Elements Track to Requirements

☐ Evaluation Operational Documentation

☐ Other (please specify) _____

- A generic summary of IV&V Review results.

The IV&V Service Provider must have successfully completed a minimum of one (1) IV&V review whose scope included meeting Federal or State administrative and technical regulations.

At a more detailed level, the IV&V Service Provider must demonstrate the corporate knowledge and experience to:

- Develop an IV&V Review Plan.

- Review and make recommendations on the management of system, product or service development project, as well as, the financial and technical aspects of the project.

- Consult with all project stakeholders and assess user involvement and buy-in regarding system, product or service functionality and its ability to satisfy stakeholders' requirements.

- Conduct an analysis of project past performance (schedule, budget, technical) sufficient to identify trends and make recommendations for improvement.

- Develop performance metrics and indicators (schedule, budget, technical) that allow project completion against project milestones to be tracked and verified.

IV&V Service Provider - Desirable Qualifications

- The IV&V Service Provider has a minimum of thirty-six (36) months experience performing audit level IV&V reviews.

- The IV&V Service Provider has a minimum of thirty-six (36) months experience performing full-phase IV&V reviews.

IV&V Team Members - Mandatory Qualifications

- Each IV&V Team Member must have a minimum of thirty-six (36) months experience performing the duties necessary to complete one or more phases (e.g., project management, planning, development, testing, implementation) of a full system, product or service development lifecycle.

- At least 50% of the IV&V Team Members must have a minimum of twenty-four (24) months cumulative experience within the past seven (7) years performing audit level IV&V reviews.

- At least one IV&V Team Member must have a Project Management Professional (PMP) Certification.

- At least one IV&V Team Member must have a minimum of one (1) previous engagement managing an IV&V review whose scope included meeting Federal or State administrative and technical regulations.

At a more detailed level, the IV&V Team Members must collectively demonstrate the individual knowledge and experience to:

- Analyze project management; work breakdown structure development and execution, schedule development and execution, resource planning and management, budget formulation and execution, workflow management and reporting, progress tracking.

- Review and analyze project management planning documents; e.g., Project Plan Executive Summary, Project Performance Plan, Work Breakdown Structure, Resource Plan, Project Schedule, Budget Plan, Procurement Plan, Risk Management Plan, Communications Plan, Change and Configuration Management Plan, Quality Management Plan.

- Review and analyze project product development documents; e.g., Project Status Reports; Change Control Requests; Issue Log; and Issue management documentation.

- Review and monitor development processes, procedures and practices to ensure they are being documented, implemented, and analyzed for improvement.

- Assess the project's Configuration Management function by reviewing CM reports and making recommendations regarding appropriate processes and tools to manage product changes.

- Assess the project's Quality Management function by reviewing QM reports and making recommendations regarding appropriate processes, procedures, practices and tools to assure product quality.

- Assess the project's Risk Management function by reviewing RM reports and making recommendations regarding appropriate processes, procedures, practices and tools to manage product planning, development, and implementation risks.

- Perform a detailed review of project deliverables and acceptance criteria for accuracy, completeness, and adherence to contractual and functional requirements.

- Perform a detailed review of the product documentation (Requirements, Design, Training, Test, and Management Plans, etc.) for accuracy, completeness, and currency.

- Perform a detailed review of the product architecture for feasibility, consistency, and adherence to industry, Federal or Commonwealth standards.

- Inventory and review application software for completeness and adherence to programming standards for the project.

- Analyze application, network, hardware and software operating platform performance characteristics relative to expected/anticipated/contractually guaranteed results and industry standards.

- Review the processes, procedures and practices used within the project for tracking business and technical requirements to their source and review the processes, procedures and practices established during the planning phase for requirements traceability throughout the subsequent development and implementation phases.

- Review the traceability of product requirements through the design, development, testing, and training tasks of the project.

- Assess and recommend improvement, as needed, to assure the planned operations and maintenance performance of the product.

- Assess and recommend improvement, as needed, to assure product testing is being performed adequately through review of test plans or other documentation and through direct observation of testing where appropriate.

- Assess and recommend improvement, as needed, to assure appropriate user and developer training is planned for and carried out.

- Review product hardware and software configurations and report on any compatibility and obsolescence issues.

- Review and analyze product performance studies to determine if the product is performing as planned.

- Effectively document IV&V review findings and recommendations.

IV &V Team Members – Desirable Qualifications

- Each IV&V Team Member has a minimum of one (1) full-technical (software and hardware) IV&V review.
- A minimum of 4,000 hours experience within the past ten (10) years in risk assessment and mitigation strategy/technique development. The hours of experience do not need to be continuous.
- A minimum of 14,000 hours development experience within the past fifteen (15) years in the full system, product or service development lifecycle. The hours of experience do not need to be continuous.

- Each IV&V Team Member has a minimum of eighty-four (84) months experience performing the duties of a system analyst.

Dependent upon the nature of the project being reviewed, it is desirable that at least one IV&V Team Member have:

- A minimum of eighty-four (84) months development experience in the full software development lifecycle.
- A minimum of eighty-four (84) months experience performing the duties of a system analyst.
- A minimum of eighty-four (84) months Mainframe experience.
- A minimum of forty-eight (48) months experience in nTier development.
- A minimum of thirty-six (36) months database experience at both the conceptual and detail level. Including a minimum of one project of twelve months duration.
- A minimum of sixty (60) months client/server experience.

Appendix F2. IV&V – Statement of Work (SOW) Template

STATEMENT OF WORK

Independent Verification and Validation Review Services

Date: Month Day, 20XX

Entity: (*State Agency Name*)

User Contact Information:
(Project Sponsor's Name), Project Sponsor
(Street Address)
(City, State, Zip)
Phone: (*Telephone Number*)

Project:
Independent Verification and Validation Review Services for the (*Project Name*) Project

Introduction:

(*Provide a short history of the project, including any pertinent dates.*)

(*Provide a brief description of the project solution (e.g., in-house development, contractor development, COTS implementation, etc.), as well as a description of the extent of the project effort (e.g., work locations, implementation locations, etc.)*)

(*Provide a statement of the Project Sponsor's determination of the complexity of the project (i.e., high, medium, or low), as well as, a description of the project's management and oversight structure and composition.*)

Scope of Work:

This Statement of Work (SOW) defines the IV&V Review Services required by the (*Agency Name*) in support of the (*Project Name*) Project. This definition includes the periodicity of the IV&V Reviews and a description of the IV&V tasks to perform during the course of each review. The IV&V Review of the (*Project Name*) Project is not to be a continuous, integral process within the project itself. Rather, it is a periodically performed, adjunct activity that does not fall within the day-to-day managerial oversight or control of the (*Project Name*) Project Management Team. Respondents to this Statement of Work (SOW) should not view their role as providing a "continuous presence" within the (*Project Name*) Project, such as might be the case with Quality Control and Assurance services.

The IV&V Service Provider will provide detailed, structured reports of findings of deficiencies and recommendations for their remediation to the Project Sponsor and the Project Management Division (PMD) of the Virginia Information Technologies Agency (VITA). The Project Sponsor will distribute copies of the reports to the Internal Agency Oversight Committee (IAOC) and Project Manager; PMD will distribute copies to the (*Secretariat Name*) Oversight Committee, the Commonwealth Chief Information Officer (CIO) and Information Technology Investment Board (ITIB). In addition, the IV&V Service Provider will make presentations to the IAOC; the PMD will forward copies of such presentations to the (*Secretariat Name*) Oversight Committee, the CIO and ITIB.

The IV&V Service Provider will provide periodic, independent analyses of the IV&V Review Areas identified in Attachment 1 by accomplishing the corresponding IV&V Task Items identified in Attachment 2. These analyses will serve to identify, inform and educate the project team, and the various oversight agencies, committees and boards of any areas of weakness and risk to the project, as well as the proposed and recommended solutions for their remediation and/or mitigation.

Reports and presentations will address technical, financial, and managerial aspects of the project at specified critical milestones. The required minimum IV&V Reviews are shown in the following table:

Task	Deliverable	Time Period
Develop an IV&V Review Plan	IV&V Review Plan	To be completed within 15 business days from the date the IV&V Service. Provider is notified of IV&V Task Order approval.
Conduct Initial IV&V Review	Initial IV&V Review Report	To be completed at the completion of the detailed project plan and preferably before project execution begins.

Conduct In-Progress IV&V Review(s)	In-Progress IV&V Review Report(s)	For High Complexity Projects: At a minimum, projects that have a duration of less than 9 months, one in-progress review during project execution is required. Projects that have a duration of greater than 9 months require quarterly reviews (at a minimum). If testing is a component of the high complexity project, then a System and Acceptance Test Planning and Execution IV&V Review and Report are required prior to product implementation. For Medium Complexity Projects: At a minimum, one in-progress review during project execution. Projects with schedules that are greater than 18 months duration will schedule semi-annual reviews. For Low Complexity Projects: In-Progress IV&V Reviews are not required.
Conduct a Project Closeout IV&V Review	Project Closeout IV&V Review Report	At project closeout to validate the completion of the project.
Post Implementation Review	No Specified Format	An optional review and report that contracting agencies may wish to engage IV&V service providers to perform 6-12 months after project closeout. This review focuses on the results and impact of the project deliverables as they relate to the business.

In addition, the Project Sponsor and the IV&V Service Provider may agree to include additional reviews as necessary.

Deliverables:

For each IV&V Review Area evaluated, the IV&V Review Report should contain the status of the (*Project Name*) Project, including any pertinent historical background information. The report should also contain a detailed analysis of each applicable IV&V Review Area, which answers at least the following questions:

- What are the current processes, procedures, practices and technology?
- What is good about the current processes, procedures, practices and technology?
- What about the current processes, procedures, practices, and technology needs improvement?
- Is there measurable progress since the last IV&V Review?
- Is the project within established budget, schedule and performance parameters?
- What standard is the development organization following (Commonwealth, industry best practice (IEEE, SEI, ISO, etc.), internal agency, contractor)?
- Is the project documentation accurate and up-to-date?

The IV&V Service Provider should quantify responses to the above questions whenever possible. The IV&V Review Report should contain findings, both positive and negative. The IV&V Review Report should also contain detailed recommendations in each IV&V Review Area specifying what (*Agency Name*) and/or (*Development Organization Name*) can do immediately and in the long term to improve the success probabilities of the project. Any technologies, methodologies, or resources recommended should reflect industry "best practices" and be appropriate for the unique circumstances and constraints of the (*Project Name*) Project. The recommendations should also specify a method of measuring progress against the recommendations.

The in-progress IV&V Review Reports should also contain any additional and/or modified recommendations at the same level of detail as the initial recommendations. All findings and recommendations should be traceable (with a clear and consistent method of identification/numbering) from the time first reported by the IV&V Service Provider until closure. The IV&V Service Provider should provide details specifying what (*Agency Name*) and/or (*Development Organization Name*) is doing that can be recommended as a best practice for the Commonwealth. Additionally, primarily at project closeout IV&V reports, a description of lessons learned from (*Agency Name*) and/or (*Development Organization Name*) should be provided.

Where applicable, the IV&V Review reports should be prepared consistent with the template provided as Attachment 3. When the template is not applicable, the Project Sponsor must approve the methodology and processes used in the analysis and preparation of the report prior to its use and the IV&V Service Provider should provide a description of the methodology and processes in the final deliverable. All IV&V Review related standards, processes, procedures, plans, and applicable reference material should be available upon request.

The IV&V Service Provider will deliver final copies of all deliverables simultaneously to the Project Sponsor and to the PMD on the delivery schedule provided in the following table.

TASK	DELIVERABLE	DUE DATE
Develop IV&V Plan	IV&V Plan	(*Date*)
Conduct Detailed Project Plan IV&V Review	Detailed Project Plan IV&V Review Report	(*Date*)

Conduct In-Progress IV&V Reviews	In-Progress IV&V Review Reports	(*Dates*)
Conduct Test Planning and Execution IV&V Reviews	Test Planning and Execution IV&V Review Reports	(*Dates*) (if not coincident with the delivery of one of the In-Progress IV&V Review Reports)
Conduct Closeout IV&V Review	Closeout IV&V Review Report	(*Date*)
Prepare and deliver presentations to IAOC	Formal presentations on each Review Report	Coincident with reports and as required, with at least ten (10) business-days notice.

The Project Sponsor reserves the right to extend the due date of any deliverable if appropriate, due to document size, schedule or changes in scope. The IV&V Service Provider must notify the Project Sponsor of any anticipated delay of a deliverable, as far in advance of the due date as possible.

The IV&V Service Provider should provide all deliverables in hardcopy form and in electronic form, using the following software standards (or lower convertible versions):

DOCUMENT TYPE	FORMAT
Text Document	Microsoft Word 2002
Spreadsheets	Microsoft Excel 2002
Presentation	Microsoft PowerPoint 2002/Visio 2002
Project Management	Microsoft Project 2000

Schedule:

Event	Date
Release SOW	(*Date*)
Response Due	(*Date*)
Award Decision	(*Date*)
Work Begins	(*Date*)

Acceptance:

The Project Sponsor will accept or reject the individual IV&V Review Reports and Presentations. The IV&V Service Provider will provide draft reports and presentations to the Project Sponsor prior to release of the final versions. The Project Sponsor cannot approve, modify, or reject a report prior to submission but may provide comments and feedback on drafts within five (5) business days of receipt of a draft. The IV&V Service Provider will submit final draft reports to the Project Sponsor for final deliverable acceptance. The Project Sponsor will review and return comments within five (5) business days of receipt of each final draft report. The IV&V Service Provider will then submit final reports within two (2) business days.

The Project Sponsor shall not unduly withhold acceptance of deliverables. The Project Sponsor must approve all deliverables. In all cases, payment to the IV&V Service Provider will be contingent upon the Project Sponsor approval of each deliverable. No

IV&V Review will be complete until the Project Sponsor has received and approved all review-related documentation.

Each respondent to this SOW must include a description of the actions it will take to produce the deliverables and obtain approval. The Project Sponsor must approve, in writing, changes to milestones, deliverables or other material changes to the task order prior to implementation of any changes.

Conflict of Interest Exclusion:

Any contractor (and its subcontractors) serving in the role of an IV&V Service Provider for the (*Project Name*) Project is prohibited from soliciting, proposing or being awarded any initiation, planning, execution and control or closeout phase work (excluding IV&V services) on the (*Project Name*) Project.

Personnel:

Respondents to this SOW must include the experience and skills of representative personnel who the respondent would propose as members of the IV&V Team for the (*Project Name*) Project. The respondent and (*Agency Name*) agree that qualified and experienced personnel are critical to the performance of an IV&V Review and that they will not be removed from this task without prior approval from (*Agency Name*) and that (*Agency Name*) will have the right of refusal for any personnel assigned to the IV&V Team. After task award, the IV&V Service Provider shall secure written approval from (*Agency Name*) prior to making any changes in IV&V Team personnel. The IV&V Service Provider will notify (*Agency Name*), in writing, of any changes in the personnel assigned to the IV&V Team. The qualifications of new personnel should be comparable with those of the replaced personnel. After task award, (*Agency Name*) may request replacement of IV&V Team personnel. Such requests will be in writing.

Respondents to this SOW must include the experience and skills of representative personnel who the respondent would propose to perform an IV&V Review of a major IT project. These personnel must have a minimum of thirty-six (36) months cumulative experience within the past seven (7) years performing the duties necessary to complete one or more phases (e.g., project management, planning, development, testing, implementation) of a full system, product or service development lifecycle. At least 50% of the IV&V Team Members must have a minimum of twenty-four (24) months cumulative experience within the past seven (7) years performing audit level IV&V reviews. At least one IV&V Team Member must have a Project Management Professional (PMP) Certification.

At a more detailed level, the IV&V Team personnel must collectively demonstrate the knowledge and experience to:

- Review the technical, financial and management aspects of the project in relationship to the project management policies, standards and guidance of the Commonwealth of Virginia.

- Analyze project management; Work Breakdown Structure development and execution, schedule development and execution, resource planning and management, budget formulation and execution, workflow management and reporting, progress tracking.

- Review and analyze project management planning documents; e.g., Project Plan Executive Summary, Project Performance Plan, Work Breakdown Structure, Resource Plan, Project Schedule, Budget Plan, Procurement Plan, Risk Management Plan, Communications Plan, Change and Configuration Management Plan, Quality Management Plan.

- Review and analyze project, product development documents; e.g., Project Status Reports; Change Control Requests; Issue Log; and Issue management documentation.

- Review and monitor development processes, procedures and practices to ensure they are documented, implemented, and analyzed for improvement.

- Assess the project's Configuration Management function by reviewing CM reports and making recommendations regarding appropriate processes and tools to manage product changes.

- Assess the project's Quality Management function by reviewing QM reports and making recommendations regarding appropriate processes, procedures, practices and tools to assure product quality.

- Assess the project's Risk Management function by reviewing RM reports and making recommendations regarding appropriate processes, procedures, practices and tools to manage product planning, development, and implementation risks.

- Perform a detailed review of project deliverables and acceptance criteria for accuracy, completeness, and adherence to contractual and functional requirements.

- Perform a detailed review of the product documentation (Requirements, Design, Training, Test, and Management Plans, etc.) for accuracy, completeness, and currency.

- Perform a detailed review of the product architecture for feasibility, consistency, and adherence to industry, Federal or Commonwealth standards.

- Inventory and review application software, for completeness and adherence to programming standards for the project.

- Analyze application, network, hardware and software operating platform performance characteristics relative to expected/anticipated/contractually guaranteed results and industry standards.

- Review the processes, procedures and practices used within the project for tracking business and technical requirements to their source and review the processes, procedures and practices established during the planning phase for requirements traceability throughout the subsequent development and implementation phases. Review the traceability of product requirements through the design, development, testing, and training tasks of the project.

- Assess and recommend improvement, as needed, to assure the planned operations and maintenance performance of the product.

- Assess and recommend improvement, as needed, to assure product testing is being performed adequately through review of test plans or other documentation and through direct observation of testing where appropriate.

- Assess and recommend improvements, as needed, to assure appropriate user and developer training is planned and accomplished.

- Review product hardware and software configurations and report on any compatibility and obsolescence issues.

- Review and analyze product performance studies to determine if the product is performing as planned.

- Effectively document IV&V Review findings and recommendations, observed best practices and captured lessons learned.

It is desired that each IV&V Team Member possess the following:

- A minimum of 4,000 hours experience within the past ten (10) years in risk assessment and mitigation strategy/technique development. The hours of experience do not need to be continuous.

- A minimum of 14,000 hours development experience within the past fifteen (15) years in the full system, product or service development lifecycle. The hours of experience do not need to be continuous.

It is desirable that at least one IV&V Team Member have:

- A minimum of one (1) previous engagement managing an IV&V review whose scope included meeting Federal or State administrative and technical regulations.

- At least 10,000 hours experience within the past seven (7) years in the technical environment employed by the project. The hours of experience do not need to be continuous.

Contract Period:

(*Agency Name*) anticipates that the start date of these IV&V Services will be (*Date*) and the end date will be (*Date*). (*Agency Name*) and the IV&V Service Provider may negotiate contract extensions as required.

Payment:

An invoice submitted upon acceptance of each IV&V Review Report assigned to the IV&V Service Provider.

Travel and expenses are to be invoiced separately. An invoice may be submitted to the Commonwealth provided written acceptance has been provided to the contractor from the contracting agency of each IV&V Review Report assigned to the IV&V Service Provider. Travel costs may be reimbursed to the contractor in accordance with the terms of Contract VA-030815 provided travel occurs as a result of either of the following: 1) travel is required of the contractor outside of the primary work place (contracting agency) and has been pre-approved by the contracting agency, or 2) out-of-state (outside of VA) travel related expenses as negotiated by the contracting agency and the contractor in accordance with the referenced Contract terms. Such travel related costs (e.g., lodging, air fare, car rental, parking, meals and incidentals expenses) will be reimbursed by the Commonwealth to the contractor provided travel costs do not exceed 15% of the total order cost of services) and rates are in accordance with travel rates as established by the Department of Accounts in the Commonwealth's State Travel Regulations. Authorized travel and related expenses as permitted by the referenced Contract shall be invoiced as they occur and separate from the invoices for IV&V services. Invoices shall not include billing for project management or oversight of the IV&V Service Provider for the successful delivery of the contracted IV&V Review Reports.

Criminal Background Checks Required: Yes: X No: ___

Controls and Guidelines:

The IV&V Service Provider must obtain prior approval from the Project Sponsor for travel outside of the Richmond Metropolitan Area. The Project Sponsor will not unduly withhold travel approval for the purpose of, interviewing major project personnel, reviewing major project documentation or observing major project activities.

Scheduled Work Hours:

On an as needed basis, to be coordinated with the (*Agency Name*) Project Sponsor and (*Project Name*) Project Manager.

Cost Type Requested (fixed price, hourly rate, etc.):

Respondent must show hourly rates and include a not to exceed amount.

Other:

None

Facility, equipment, etc., to be provided by User Entity:

(*Agency Name*) has limited workspace, furniture and equipment available and only on a temporary basis. Permanent office space, furniture and equipment are the responsibility of the IV&V Service Provider. While on-site at the project location (*Agency Name*) will provide access to a copier, fax, the agency LAN and the internet (for up to two connections). (*Agency Name*) will also provide temporary desk space. The IV&V Service Provider must provide any cell phones, personal computers or laptops required by the IV&V Review Team. The VITA technical staff supporting the agency's network must verify that any personal computers or laptops meet minimum-security configuration standards (e.g., current virus protection) before any equipment may be connected to the agency's LAN.
(*Agency Name*) will also provide access to all (*Project Name*) Project related information, including, but not limited to, technical documentation, project status, financial data and project and contractor personnel attached to the project.

3 Attachments:

Attachment 1: IV&V Review Areas *(see Appendix x in Project Management Guideline))*

Attachment 2: IV&V Review Areas and Task Items *(see Appendix y in Project Management Guideline))*

Attachment 3: IV&V Review Report Template *(see Appendix z in Project Management Guideline))*

Appendix F3. IV&V – Issue Resolution Process